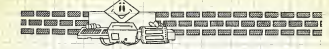
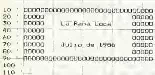
3040

```
2740 FX=66:IF NF>9 THEN FX=62
2750 GOSUB 3230
2760 PRINT#1,"saving ";NF$:COLOR 15
2770 NR=0:OPEN NF$ FOR OUTPUT AS#2
2780 NR=NR+10:PRINT#2,NR;"REM *****************************"
2790 NR=NR+10:PRINT#2,NR;"REM *                           *"
2800 NR=NR+10:PRINT#2,NR;"REM *      MSX DRAW EDITOR      *"
2810 NR=NR+10:PRINT#2,NR;"REM *                           *"
2820 NR=NR+10:PRINT#2,NR;"REM *****************************"
2830 NR=NR+10:PRINT#2,NR;"REM"
2840 NR=NR+10:PRINT#2,NR;"REM .. PULSA  'RUN' para ver ..."
2850 NR=NR+10:PRINT#2,NR;"REM .......  eL  DISEÑO.........."
2860 NR=NR+10:PRINT#2,NR;"REM"
2870 NR=NR+10:PRINT#2,NR;"COLOR,";MID$(STR$(CS),2);",";MID$(STR$(
CB),2);":SCREEN 2"
2880 NR=NR+10:PRINT#2,NR;"OPEN";CHR$(34);"GRP:";CHR$(34);"AS#1"
2890 FOR S=0 TO R-1:NR=NR+10
2900 A$=MID$(STR$(XA(S)),2)
2910 B$=MID$(STR$(YA(S)),2)
2920 C$=MID$(STR$(XB(S)),2)
2930 D$=MID$(STR$(YB(S)),2)
2940 E$=MID$(STR$(CO(S)),2)
2950 ON DR(S) GOSUB 2980,2990,3000,3020,3030:NEXT S
2960 NR= NR+10:PRINT#2,NR;"GOTO";NR
2970 CLOSE#2:FD=1:GOTO 2470
2980 PRINT#2,NR;"LINE(";A$;",";B$;")-(";C$;",";D$;"),";E$:RETURN
2990 PRINT#2,NR;"LINE(";A$;",";B$;")-(";C$;",";D$;"),";E$;",B":RE
TURN
3000 RX=ABS(XA(S)-XB(S)):RY=ABS(YA(S)-YB(S)):RC=SQR(RX^2+RY^2):RF
!=1.4*(RY+1E-05)/(RX+1E-05)
3010 PRINT#2,NR;"CIRCLE(";A$;",";B$;"),";MID$(STR$(RC),2);",";E$;
",,,";MID$(STR$(RF!),2):RETURN
3020 PRINT#2,NR;"PRESET(";C$;",";D$;")";":PAINT(";C$;",";D$;"),";
E$:RETURN
3030 PRINT#2,NR;"COLOR";E$;":PRESET(";A$;",";B$;"):PRINT#1,";CHR$
(34);DR$(S);CHR$(34):RETURN
3040 REM
3050 REM *                     *
3060 REM * SUB.INPUT# DATOS DISEÑO *
3070 REM *                     *
3080 REM
3090 FX=66:GOSUB 3220
3100 PRINT#1,"input# data draw"
3110 S=0:ON ERROR GOTO 3250:OPEN"CAS:" FOR INPUT AS#2
3120 INPUT#2,DD$,R,CS,CB
3130 FOR S=0 TO R
3140 INPUT#2,XA(S),YA(S),XB(S),YB(S),CO(S),DR(S),DR$(S):NEXT S:IF
 DR(R-1)<3 OR DR(R-1)=4 THEN FR=0 ELSE FR=1
3150 CLOSE#2:FD=1:GOTO 2470
3160 REM
3170 REM *                        *
3180 REM *    SUB.GRAPH. I/O  Y      *
3190 REM * CONTROL DE INTERRUPCIONES *
3200 REM *                        *
3210 REM
3220 LINE(56,181)-(200,191),1,B
3230 LINE(56,182)-(200,190),14,BF
```

```
3240 PSET(FX,183),14:COLOR 1:RETURN
3250 K=S
3260 RESUME 2970
3270 REM
3280 REM *                          *
3290 REM *    SUB.CANCELACION       *
3300 REM *    TOTAL DEL DISEÑO      *
3310 REM *                          *
3320 REM
3330 ERASE XA,YA,XB,YB,CO,DR,DR$:P=0
3340 R=0:S=0:COLOR CP,CS,CB:SCREEN 2
3350 DIM XA(100),YA(100),XB(100),YB(100),CO(100),DR(100),DR$(100)
3360 H=1:I=8:FD=1:XC=120
3370 X=128:Y=96:XA(R)=X:YA(R)=Y
3380 CO(R)=CP:FR=1:PSET(X,Y):RETURN
3390 REM
3400 REM *                          *
3410 REM * SUR. ILUSTRACION  MENU   *
3420 REM *                          *
3430 REM
3440 DATA <F1>,<F2>,<F3>,<F4>,<F5>,BD3R6,D5R6U5L5,BD2D2F2R2E2U2H2
L2G1,R2F1L3D1R3F4D1L1H4L1,BD5BR1R3E1H1L2H1E1R3BU1BL2D6,BD5BR1F1r2
E1U1H1L2H1U1E1R2F1,BR1D6R4,BD1F5R1H5BR4G5R1E5,<CUR>,<SPC>,<TAB>,<
SEL>,<DEL>,<INS>,<   >,<RET>,<HOM>
3450 DATA activa menu/programa.....,cambia color borde......,camb
ia color fondo.....,cambia color 1  plano...,"selecciona opciones
.......",=linea,=rectangulo,=circulo-elipse,=paint,=caracteres,=s
alva a cinta,=carga de cinta,=cancelacion total
3460 DATA mueve la pluma............,mov.pluma 1/8 punto......,fij
a origen de figura,parpadeo figura actual..,parpadeo fig.preceden
te..,parpadeo fig.siguiente...,cancela fig. parpadeante,diseña  f
ig.parpadeante,continua el diseño entero
3470 REM
3480 REM *                          *
3490 REM *       SUB. MENSAJE       *
3500 REM *    SATURACION  MEMORIA   *
3510 REM *                          *
3520 REM
3530 YE=10:S3=14:S4=1:FOR N=1 TO 8
3540 SWAP S3,S4:GOSUB 3570:NEXT N
3550 YE=-20:GOSUB 3570
3560 P=0:F5=0:RETURN
3570 PUT SPRITE 15,(120,YE),14
3580 PUT SPRITE 14,(120,YE),S3
3590 IFS3=1THENPLAY"S1M800L3204N40"
3600 FORK=0TO50:NEXTK:RETURN
```



LA RANA LOCA



```
10 ' 00000000000000000000000000000000
20 ' 00000                      00000
30 ' 00000    La Rana Loca      00000
40 ' 00000                      00000
60 ' 00000                      00000
70 ' 00000    Julio de 1986     00000
80 ' 00000                      00000
90 ' 00000000000000000000000000000000
100 '
110 '
120 '            PORTADA
130 '
140 COLOR 15,1,1:SCREEN 2,0,1
150 '             L
160 DRAW"s4C6BM15,15R3U1R2D1R2D6L1D7R1D6L1D4L1D1R1D1R1D1R6D1R4D3R
3D2L1D1L9D1L3U1L3U2L3U7L2U7R1U4R1U10L1U4R1"
170 '             A
180 DRAW"C15BM45,47U2L1U9R1U5L2U8R1E1U2R1U3R5U4E1R4D1R3D3R2D3R2F1
D8R2D13L1D2L1D2L4D1L3U3E1U6R3U6L2H1U7L5D1L2D1L2D5L2R2D3L1D6R1D5R1
D2R1D2L5U1BM50,28R7D1BM50,31R3D1R1D1R8"
190 '             R
200 DRAW"C5BM99,13D6R2D11L1D1G3D2F1R4D8G1D1R3D2R2D1R4H3U4R1U6L1U4
R2F6D3R1D2R1D4R3U2R1U4R2U3H4L2U2L2U1L1U3L3U1R1U1R2U1R4U3R1U1R1U3R
1U4L3H3L5U1L2U1L3U1L3G3R1BM107,15R3D2R3D3L1G1D1L1G1D1L3U1R1U2L1U3
R1U4R1"
210 '             A
```

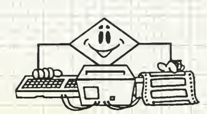
```
220 DRAW"C10BM133,47U2L1U9R1U5L2U8R1E1U2R1U3R5U4E1R4D1R3D3R2D3R2F
1D8R2D13L1D2L1D2L4D1L3U3E1U6R3U6L2H1U7L5D1L2D1L2D5L2R2D3L1D6R1D5R
1D2R1D2L5U1BM138,28R7D1BM138,31R3D1R1D1R8"
230 '             N
240 DRAW"C13BM164,49U2L1U9R1U5L2U8R1E1U2R1U3L2U4E1R2U2R2F2D5R2D4F
3R2D3F3R1U5R1U2H2R2U3E2U2L2U3E2R2F2R1D2R1F2D5G2D3G2D4F1D2R2D6G3D3
L2U2L1H2U3L2H2U3L3H3L2D3F1D1L2D4F3L2D2G2L4"
250 '             A
260 DRAW"C12BM203,49U2L1U9R1U5L2U8R1E1U2R1U3R5U4E1R4D1R3D3R2D3R2F
1D8R2D13L1D2L1D2L4D1L3U3E1U6R3U6L2H1U7L5D1L2D1L2D5L2R2D3L1D6R1D5R
1D2R1D2L5U1BM208,30R7D1BM208,33R3D1R1D1R8"
270 '             L
280 DRAW"BM62,70C7R4U1R3D11R1D8L1D6R1D5R1D1R6D1R1D2R2D1L4D1L6D1L5
U6L3H1U2R2U8R2U6L2H1U8R1U5R1"
290 '             O
300 DRAW"c10BM104,67R2D2R3D4F1R1F1D1F4D12L2D3L2G1D2L3D5L4D3L7U2L4
H1U4L3U9L1U6E5L1H1U4E1U4E1R5U2R3D1R2D1BM99,77D3L2D2L1D3L2D8R1D1R4
D2R3U1E1U1R3U2E1R1E1U3H1U1H1U5L1U4L186"
310 '             C
320 DRAW"bm145,70C3U1L2U2L8D1L5D4L1D3L1D7R1D7L1D4R1D2R2D7R3D1R7D1
R6U1R1U5L2U5H1L5D1L3U1L1U2L1U5L1U6L1U5R5U1R1U1R2U1R1r3u1"
330 '             A
340 DRAW"C9BM160,105U2L1U9R1U5L2U8R1E1U2R1U3R5U4E1R4D1R3D3R2D3R2F
1D8R2D13L1D2L1D2L4D1L3U3E1U6R3U6L2H1U7L5D1L2D1L2D5L2R2D3L1D6R1D5R
1D2R1D2L5U1BM163,87R10D1BM163,90R3D1R1D1R8"
350 '
380 '
390 PAINT(16,16),6
400 PAINT(46,44),15
410 PAINT(54,30),15
420 PAINT(100,14),5
430 PAINT(135,46),10
440 PAINT(142,30),10
450 PAINT(165,48),13
460 PAINT(205,48),12
470 PAINT(212,31),12
480 PAINT(64,73),7
490 PAINT(105,68),10
500 PAINT(136,73),3
510 PAINT(163,104),9
520 PAINT(167,89),9
530 '
540  N=(N+1)MOD(15):VDP(7)=N:FOR I=1 TO 10 :NEXT
550 FF=FF+1:IF FF>227 THEN570
560 GOTO 540
570 '
580 '
590 COLOR 15,1,1
600 SCREEN 1,2:KEY OFF:WIDTH 32
610 LOCATE 1,10:PRINT"             PULSA
                O PARA CURSOR 1 PARA JOYSTICK"
620 X$=INKEY$
630 IF X$="0" THEN CT=0:GOTO 660
640 IF X$="1" THEN CT=1:GOTO 660
650 GOTO 620
660 CLS
670 LOCATE 6,12:PRINT"UN MOMENTO POR FAVOR"
```

```
670 LOCATE 6,12:PRINT"UN MOMENTO POR FAVOR"
680 '
690 '
700 FOR K=1 TO 12:B$="":FORI=1TO 32 :READ A$:B$=B$+CHR$(VAL("&H"+
A$)):NEXT:SPRITE$ (K)=B$:NEXT
710
720 '  REDEFINICION DE CARACTERES
730 '
740 FOR I=BA+1600 TO BA+1615
750 VPOKE 8192+25,33
760 READ A$:B=VAL("&H"+A$):VPOKE I,B:NEXT
770 GOSUB 2190
780 LOCATE 6,12:PRINT"                    "
790 '
800 HH=11:CR=10:Y=158:X=120
810 '
820 GOSUB 1820:GOSUB 1830:GOSUB 1840:GOSUB 1850:GOSUB 1860 :GOSUB
 1870
830 '
840 SPRITE ON
850 STRIG(0)ON:ON STRIG GOSUB 1260
860 ON INTERVAL=20 GOSUB 1770 :GOSUB 1790
870 ON SPRITE GOSUB 1610
880 '
890 TIME=0
900 '
910 ' BUCLE PRINCIPAL
920 '
930 IF TIME >200 THEN GOSUB 1740
940 IF X>215 THEN X=215
950 IF X<25 THEN X=25
960 IF A1=0 THEN GOSUB 1070 ELSE GOSUB 1030
970 IF Y<158 THEN Y=Y+2
980 IF Y>158 THEN Y=158
990 IF GO>5 THEN 2060
1000 GOTO 930
1010 '
1020 '
1030 '
1040 X=X+MM:Y=Y-HH:IF MM=4 THEN GOSUB 1360:GOTO 990 ELSE GOSUB 14
50:GOTO 990
1050 '
1060 '
1070 DI=STICK(CT)
1080 IF DI=0 THEN  GOSUB 1190:RETURN
1090 IF DI=1 THEN Y=Y-6:GOSUB 1210
1100 IF DI=5 THEN Y=Y+4:GOSUB 1210
1110 IF DI=2 THEN X=X+4:Y=Y-4:GOSUB 1210
1120 IF DI=3 THEN X=X+4:GOSUB 1210
1130 IF DI=4 THEN X=X+4:Y=Y+4:GOSUB 1210
1140 IF DI=6 THEN X=X-4:Y=Y+4:GOSUB 1230
1150 IF DI=7 THEN X=X-4:GOSUB 1230
1160 IF DI=8 THEN X=X-4:Y=Y-4:GOSUB 1230
1170 RETURN
1180 '
1190 IF MM=4 THEN GOSUB 1320:RETURN ELSE GOSUB 1410:RETURN
1200 '
1210 MM=4:J=(J+1) MOD(3)+1:ON J GOSUB 1320,1360:RETURN
```

```
1220 '
1230 MM=-4:J1=(J1+1)MOD(3)+1:ON J1 GOSUB 1410,1450:RETURN
1240 '
1250 '
1260 STRIG(0) OFF
1270 A1= 1
1280 RETURN
1290 '
1300 ' POSICIONES DE LA RANA
1310 '
1320 PUTSPRITE 1,(X+15,Y-7),CR,1
1330 PUTSPRITE 2,(X-1,Y),CR,2
1340 PUTSPRITE 4,(X-14,209),CR,4
1350 RETURN
1360 PUTSPRITE 1,(X+15,Y-13),CR,1
1370 PUTSPRITE 2,(X-1,Y-5),CR,3
1380 PUTSPRITE 4,(X-14,Y+8),CR,4
1390 IF A1=1 THEN GOSUB 1530
1400 RETURN
1410 PUTSPRITE 1,(X-15,Y-7),CR,6
1420 PUTSPRITE 2,(X+1,Y),CR,7
1430 PUTSPRITE 4,(X+14,209),CR,9
1440 RETURN
1450 PUTSPRITE 1,(X-15,Y-13),CR,6
1460 PUTSPRITE 2,(X+1,Y-5),CR,8
1470 PUTSPRITE 4,(X+14,Y+8),CR,9
1480 IF A1=1 THEN GOSUB 1530
1490 RETURN
1500 '
1510 ' RUTINA DE SALTO
1520 '
1530 HH=HH-1.15:IF HH<-11 THEN GOSUB 1560
1540 RETURN
1550 '
1560 A1=0:STRIG(0)ON:HH=11 :RETURN
1570 '
1580 '
1590 '    RUTINA DE CHOQUES
1600 '
1610 IF X-15>45 THEN 1630
1620 IF (X1+4)<(X+25) AND (X1+4)>(X-15) AND (Y1+4)>Y-12 AND Y1+4<
Y+16 THEN BEEP:PU=PU+1:GOSUB 1820:TIME=0:GOTO 1720
1630 IF X-15>85 THEN 1650
1640 IF (X2+4)<(X+25) AND (X2+4)>(X-15) AND (Y2+4)>Y-12 AND Y2+4<
Y+16 THEN BEEP:PU=PU+1:GOSUB 1830:TIME=0:GOTO 1720
1650 IF X-15>125 THEN 1670
1660 IF (X6+4)<(X+25) AND (X6+4)>(X-15) AND (Y6+4)>Y-12 AND Y6+4<
Y+16 THEN BEEP:PU=PU+1:GOSUB 1870:TIME=0:GOTO 1720
1670 IF X-15>165 THEN 1690
1680 IF (X3+4)<(X+25) AND (X3+4)>(X-15) AND (Y3+4)>Y-12 AND Y3+4<
Y+16 THEN BEEP:PU=PU+1:GOSUB 1840:TIME=0:GOTO 1720
1690 IF X-15>200 THEN 1710
1700 IF (X4+4)<(X+25) AND (X4+4)>(X-15) AND (Y4+4)>Y-12 AND Y4+4<
Y+16 THEN BEEP:PU=PU+1:GOSUB 1850:TIME=0:GOTO 1720
1710 IF (X5+4)<(X+25) AND (X5+4)>(X-15) AND (Y5+4)>Y-12 AND Y5+4<
Y+16 THEN BEEP:PU=PU+1:GOSUB 1860:TIME=0
1720 SPRITE OFF:INTERVAL ON:RETURN
```

```
1730 '
1740 FOR 1=1 TO 6 :BEEP:NEXT:GO=GO+1:TIME=0:RETURN
1750 '
1760 '
1770 SPRITE ON:INTERVAL OFF
1780 '
1790 KK=1+(KK+1)MOD(7)
1800 ON KK GOSUB 1820,1830,1840,1850,1860,1870:RETURN
1810 '
1820 X1=15+INT(RND(1)*30):Y1=INT(RND(1)*170):PUTSPRITE 6,(X1,Y1),
7,11:RETURN
1830 X2=55+INT(RND(1)*30):Y2=INT(RND(1)*170):PUTSPRITE 7,(X2,Y2),
13,12:RETURN
1840 X3=135+INT(RND(1)*30):Y3=INT(RND(1)*170):PUTSPRITE 8,(X3,Y3)
,2,11:RETURN
1850 X4=175+INT(RND(1)*25):Y4=INT(RND(1)*170):PUTSPRITE 9,(X4,Y4)
,15,12:RETURN
1860 X5=210+INT(RND(1)*25):Y5=INT(RND(1)*170):PUTSPRITE 10,(X5,Y5
),6,11:RETURN
1870 X6=95+INT(RND(1)*30):Y6=INT(RND(1)*170):PUTSPRITE 11,(X6,Y6)
,5,12:RETURN
1880 '
1890 '   sprites  de la rana
1900 '
1910 DATA0,0,C,12,32,7F,FE,FF,FF,F0,FE,7F,fF,78,0,0,0,0,0,0,0,0,8
0,C0,C0,0,0,C0,80,0,0,0
1920 DATA0,0,0,3,F,1F,3A,78,60,D8,BF,FC,7E,7B,33,1,3,1F,FF,F0,A3,
4,38,38,2C,CE,5,5,0,0,E0,50
1930 DATA0,0,0,3,F,1F,3A,78,60,d8,BF,FE,7C,FC,F8,E0,3,1F,Ff,F0,A3
,7,38,38,30,F0,18,C,14,14,0,0
1940 DATA 0,0,0,0,10,8,25,1F,4E,38,0,0,0,0,0,0,0,8,18,3C,78,E0,80
,0,0,0,0,0,0,0,0,0
1950 DATA0,0,0,0,0,1,8,F,3F,4E,80,0,0,0,0,0,0,0,0,1E,B9,F0,80,80,
80,0,0,0,0,0,0,0
1960 ' sprites rana girarada
1970 '
1980 DATA 0,0,0,0,0,0,1,3,3,0,0,3,1,0,0,0,0,?,30,48,4C,FE,7F,FF,F
F,F,7F,FE,FF,1E,0,0
1990 DATA C0,F8,FF,F,C5,20,1C,1C,34,73,A0,A0,0,0,7,A,0,0,0,C0,F0,
F8,5C,1E,6,18,FD,3F,7E,DE,CC,80
2000 DATA C0,F8,FF,F,C5,E0,1C,1C,C,F,18,30,28,28,0,0,0,0,0,C0,F0,
F8,5C,1E,6,18,FD,7F,3E,3F,1F,7
2010 DATA 0,10,18,3C,1E,7,1,0,0,0,0,0,0,0,0,0,0,0,0,8,10,A4,F8,
72,1C,0,0,0,0,0,0
2020 DATA 0,0,0,78,9D,F,1,1,1,0,0,0,0,0,0,0,0,0,0,0,80,D0,F0,FC
,72,1,0,0,0,0,0
2030 '
2040 'MENSAJES DE FIN DE JUEGO
2050 '
2060 CLS:COLOR 1,15,6
2070 PUT SPRITE1,(110,208),1,1
2080 LOCATE 3,6:PRINT" LO SIENTO LOS HABITANTES"
2090 LOCATE 4,8:PRINT" DE LA CHARCA SE TE HAN"
2100 LOCATE 10,10:PRINT" INDIGESTADO"
2110 LOCATE 5,14:PRINT"PUNTOS CONSEGUIDOS =";PU
2120 LOCATE 2,18:PRINT" LO INTENTAS DE NUEVO [S/N]"
2130 X$=INKEY$
```

```
2140 IF X$="S" OR X$="s" THEN RUN 590
2150 IF X$="n" OR X$="N" THEN SCREEN 0:COLOR 15,4,4:END
2160 GOTO 2130
2170 DATA5A,8D,7E,DB,FF,66,3C,C3,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,
0,0,0,0,0,0,0,0,88,49,2A,BE,6B,C9,FF,63,3E,49,DD,0,0,0,0,0,80,0,0
,80,0,80,80,0,0,0,80,0,0,0,0,0
2180 DATA0,49,2A,D2,35,B5,5B,EE,DA,55,6D,DE,7F,B6,FF,D5
2190 FOR I=6144  TO 6911 STEP 32:VPOKE I,201:VPOKE I+1,201:NEXT
2200 FOR I=6175 TO 6912 STEP 32:VPOKEI,201:VPOKE I-1,201:NEXT
2210 FOR I=6881 TO 6910:VPOKEI,201:NEXT
2220 FOR I=6849 TO 6878:VPOKEI,200:NEXT
2230 RETURN
```



AJUSTE A UNA RECTA

```
20 COLOR 15,4,4:SCREEN 0:WIDTH 39
21 LOCATE 5,2:PRINT"AJUSTE A UNA RECTA"
22 LOCATE 2,5:PRINT"Este programa ajusta una nube de      puntos a
 una recta por el método de losmínimos cuadrados. También present
a en pantalla otros datos de interés como"
23 PRINT"varianza, desviaciones típicas, coe-    ficientes de regr
esión, correlación,    etc "
24 PRINT:PRINT"  Pulsa una tecla para comenzar"
25 IF INKEY$="" THEN 25 ELSE CLS
30 DEFSNGA-Z
40 INPUT"NUMERO DE PUNTOS:";NP:DIMX(NP),Y(NP),Z(NP)
50 FORI=1TONP:INPUT"X=";X(I):INPUT"Y=";Y(I):NEXTI
60 EX=0:FORI=1TONP:EX=EX+X(I):NEXTI:EX=EX/NP
70 EY=0:FORI=1TONP:EY=EY+Y(I):NEXTI:EY=EY/NP
80 DX2=0:FORI=1TONP:DX2=DX2+(X(I)-EX)*(X(I)-EX):NEXTI:DX2=DX2/NP
90 DY2=0:FORI=1TONP:DY2=DY2+(Y(I)-EY)*(Y(I)-EY):NEXTI:DY2=DY2/NP
100 FXY=0:FORI=1TONP:FXY=FXY+X(I)*Y(I):NEXTI:FXY=FXY/NP
110 A=(FXY-EX*EY)/DX2:B=EY-EX*A
120 CR=A:CC=(FXY-EX*EY)/SQR(DY2*DX2):RC=CC*CC:Z=B:GOSUB300
130 CLS:LOCATE0,0:PRINT"E[X]=";EX:LOCATE0,1:PRINT"E[Y]=";EY:LOCAT
E0,2:PRINT"E[XY]=";FXY:LOCATE0,3:PRINT"COV[X,Y]=";FXY-EX*EY:LOCAT
E0,4:PRINT"VAR[X]=";DX2
140 LOCATE0,5:PRINT"VAR[Y]=";DY2:LOCATE0,6:PRINT"RECTA DE REGRESI
ON (Y SOBRE X):":LOCATE0,7:PRINT"Y="+STR$(A)+"X"+S$:LOCATE0,8:PRI
NT"COEFICIENTE DE REGRESION="
150 LOCATE0,9:PRINTCR:LOCATE0,10:PRINT"COEFICIENTE DE CORRELACION
=":LOCATE0,11:PRINTCC:LOCATE0,12:PRINT"RAZON DE CORRELACION=":LOC
```

```
ATEO,13:PRINTRC
160 LOCATEO,16:PRINT"PULSA TECLA PARA GRAFICA.":LOCATEO,18:PRINT"
LA GRAFICA PERMANECERA EN":LOCATEO,19:PRINT"PANTALLA HASTA QUE PU
LSES":LOCATEO,20:PRINT"TECLA."
170 FORI=1IONP:Z(I)=X(I):NEXTI:GOSUB320:NX=MIN:FORI=1TONP:Z(I)=X(
I)-NX:NEXTI:GOSUB350:MX=MA:FORI=1TONP:X(I)=Z(I)*255/MX:NEXTI
180 FORI=1TONP:Z(I)=Y(I):NEXTI:GOSUB320:NY=MIN:FORI=1TONP:Z(I)=Y(
I)-NY:NEXTI:GOSUB350:MY=MA:FORI=1TONP:Y(I)=Z(I)*190/MY:NEXTI
190 G$=INKEY$:IFG$=""GOTO 190
200 SCREEN2
210 LINE(-NX*255/MX,0)-(-NX*255/MX,190),1:LINE(0,190+NY*190/MY)-(
255,190+NY*190/MY),1
220 FORI=1TONP:PSET(X(I),190-Y(I)),1:NEXTI
230 FORI=0TO256:X=I*255/MX:IF(X<0)OR(X>256)GOTO260
240 Y=190-(A*I+B)*190/MY:IF(Y<0)OR(Y>190)GOTO 260
250 PSET(X,Y),15
260 NEXTI
270 G$=INKEY$:IFG$=""GOTO 270
280 SCREENO:LOCATEO,10:PRINT"PULSA O PARA OTRO.":LOCATEO,12:PRINT
"PULSA F PARA FINALIZAR.
290 G$=INKEY$:IFG$=""THENGOTO 290ELSEIFG$="O"ORG$="o"THENRUNELSEI
FG$="F"ORG$="f"THENGOTO380ELSEGOTO 290
300 S$=STR$(Z):IFZ>=0THENS$="+"+MID$(STR$(Z),2)
310 RETURN
320 MIN=0:FORI=1TONP:IFZ(I)>MINGOTO 340
330 MIN=Z(I)
340 NEXTI:RETURN
350 MA=0:FORI=1TONP:IFZ(I)<MAGOTO 370
360 MA=Z(I)
370 NEXTI:RETURN
380 CLS:LOCATE4,10:PRINT"PARA EL SIGUIENTE PROGRAMA"
390 LOCATE4,12:PRINT"PULSA PLAY EN EL CASSETTE"
400 CLOAD
```



N.º 12 AÑO II



DRAW EDITOR
LA RANA LOCA
AJUSTE A UNA RECTA
TRUCO 3
TENIS
BASE 7
LA GRUTA



TRUCO 3

```
10 SCREEN 2
20 COLOR 10,4,10
30 FOR N =1 TO 10 STEP 2
40 LINE (0+N,63+N)-(255-N,128-N),1,B
50 NEXT N
60 FOR N=0 TO 255 STEP 2
70 VPOKE N+6144,0:VPOKEN+6145,1:VPOKEN+6656,0:VPOKE N+6657,1
80 NEXT N
90 VPOKE A,255:VPOKE 15-A,255:VPOKE 4096+A,255:VPOKE 4111-A,255
100 IF A=7 THEN VPOKE A,129:VPOKE 15-A,129:VPOKE 4096+A,129:VPOKE
 4111-A,129:A=0:GOTO 90:ELSE A=A+1
110 VPOKE A-1,129:VPOKE 16-A,129:VPOKE 4096+A-1,129:VPOKE 4112-A,
129
120 GOTO 90
```

TENIS

```
20 REM *** DIBUJO DE LA PALABRA TENIS ***
30 COLOR 1,14,8
40 CLS
50 SCREEN 2
60 PSET(38,20),1
70 DRAW"R30D8L11D22L8U22L11U8"
80 PAINT(40,22),1
90 PSET(79,20),4
100 DRAW"R25D6L17D6R17D6L17D6R17D6L25U30"
110 PAINT(81,22),4
120 PSET(115,20),13
130 DRAW"R6D0F1D1F1D1F1D0F1D1F1D0F1D1F1D1F1D0F1D1F1D1F1D0F1U19R6D
30L6U0H1U1H1U0H1U1H1U0H1U1H1U0H1U1H1U0H1U1H1U1H1U1H1D19L6U30"
140 PAINT(117,22),13
150 PSET(150,20),2
160 DRAW"R6D30L6U30"
170 PAINT(152,22),2
180 PSET(167,20),6
190 DRAW"R25D7L19D5R19D18L25U7R19U5L19U18"
200 PAINT(169,22),6
210 REM *** DIBUJO DEL TENISTA ***
220 CIRCLE(98,85),11,1
230 PSET(90,80),1
240 DRAW"R25"
250 PAINT(100,77),1
260 CIRCLE(97,85),1,1
```

```
270 CIRCLE(105,85),1,1
280 PSET(101,86),1
290 DRAW"F3L2"
300 CIRCLE(100,90),3,1,3.14,6.28
310 PSET(95,96),1
320 DRAW"D2G1D2G1D1"
330 PSET(101,96),1
340 DRAW"D2G1D2G1D1"
350 PSET(99,104),6
360 DRAW"R2E1R2E1R2E1R2E1R3D8L2D1L2D1L4D0L1D1D3G1D3G1D3G1D3G1D3G1
D3G1L10U22G7U4H1U4H1E8R4D1F3D2F3E2U3E1U3"
370 PAINT(102,106),6
380 PSET(116,102),1
390 DRAW"E1R2E1R2E1R2E1R2E1R2E1R2U3R6D8L4D2L2U2L2G1L2G1L2G1L2G1L2
G1L2G1D1U8"
400 PSET(79,113),1
410 DRAW"G2D1G3D1G2D1G3D1G2D1G1U2L6D8R4D2R2U2E2U1E3U1E2U1E2U1E3U1
E1"
420 PSET(99,136),4
430 DRAW"L10G12F2R2F2R2F2R2E6F2R2F2R2E2U2E2U2E2U2H1L1H1L1H1L1H2L1
"
440 PAINT(95,140),4
450 PSET(106,151),1
460 DRAW"F16D1F1D1F1D1F1D1F1D1F1D1F1D1F1D1F1D1F1D4R4U2F1R1F1R2F0R
2U1H7L5R5U1H1U2H1U1H1U2H1U1H1U1H1U2H1U1H1U1H15"
470 PAINT(135,183),1
480 PSET(141,94),1
490 DRAW"E14F2G16"
500 PAINT(143,95),1
510 CIRCLE(167,72),12,1
520 CIRCLE(190,82),4,3
530 PAINT(190,82),3
540 PSET (77,152),1
550 DRAW"G11L21D5R1D11R1E1U1E1U1E1U1E1U1E1U6D6R4F1R4F1R5E18"
560 PAINT(47,169),1
570 FOR J=1 TO 2000:NEXT J
580 REM *** INTRODUCCION DE LOS DATOS PRELIMINARES ***
590 SCREEN 1
600 KEY OFF
610 CLS:BEEP:LOCATE 1,10: LINE INPUT "INDICA 1 O 2 JUGADORES ";W$
620 IF W$="2" THEN 650
630 IF W$="1" THEN 1250
640 W=VAL(W$): IF W<1 OR W>2 THEN 610
650 CLS:BEEP:LOCATE 1,10: LINE INPUT "NOMBRE DEL PRIMER JUGADOR:
      ";Q$
660 CLS:BEEP:LOCATE 1,10:LINE INPUT "NOMBRE DEL SEGUNDO JUGADOR:
      ";N$
670 CLS:BEEP:LOCATE 0,7:PRINT"****ELIJA NIVEL DE JUEGO ****":LOCA
TE 0,9 :LINE INPUT"DE 4 A 8: ";R$
680 R=VAL(R$)
690 IF R<4 OR R>8 THEN 670
700 CLS:BEEP:LOCATE 0,10: LINE INPUT "A CUANTOS PUNTOS SERA EL FI
N DEL MACH ?";T$:T=VAL(T$)
710 IF T<=0 OR T>25 THEN 700
720 REM *** INSTRUCCIONES 2 JUGADORES ***
730 CLS:LOCATE 10,6:PRINTQ$
740 LOCATE 3,10:PRINT"JUEGAS A LA IZQUIERDA"
```

```
750 LOCATE 3,12:PRINT"TU RAQUETA ES LA NEGRA"
760 LOCATE 3,14:PRINT"PULSA S PARA AVANZAR"
770 LOCATE 9,16:PRINT"A PARA RETROCEDER"
780 LOCATE 9,18:PRINT"W PARA SUBIR"
790 LOCATE 9,20:PRINT"Z PARA BAJAR"
800 FOR G=1 TO 4500:NEXT G
810 FOR K=1 TO 25:PRINT:BEEP:NEXT K
820 CLS:LOCATE 10,6:PRINT N$
830 LOCATE 3,10: PRINT"JUEGAS A LA DERECHA "
840 LOCATE 3,12:PRINT"TU RAQUETA ES LA AZUL"
850 LOCATE 3,14:PRINT"PULSA O PARA AVANZAR"
860 LOCATE 9,16:PRINT"P PARA RETROCEOER"
870 LOCATE 9,18:PRINT"O PARA SUBIR"
880 LOCATE 9,20:PRINT"L PARA BAJAR"
890 FOR G=1 TO 4500:NEXT G
900 FOR K=1 TO 25 :PRINT:BEEP:NEXT K
910 REM *** COMIENZO DEL JUEGO:POSICIONES INICIALES DE LASRAQUETA
S Y LA PELOTA ***
920 COLOR 1,14,2
930 SCREEN 3
940 X=126:Y=0
950 X1=4:Y1=R
960 J=12: K=94
970 L=240:M=94
980 IF N$<>"MSX-80RG"THEN GOSUB 1410 ELSE GOSUB 1630
990 PSET (J,K-4),1:PSET(J,K),1:PSET(J,K+4),1
1000 PSET (L,M-4),4:PSET(L,M),4:PSET(L,M+4),4
1010 REM *** OIBUJO LINEA DIVISORIA ***
1020 LINE(126,0)-(126,192),6
1030 REM *** MOVIMIENTO Y REBOTES DE LA PELOTA ***
1040 XI=(X-X1)
1050 YI=(Y+Y1)
1060 PSET(XI,YI),1
1070 PRESET (X,Y)
1080 X=XI:Y=YI
1090 IF YI>188 THEN Y1=-R:BEEP
1100 IF YI<2 THEN Y1=R:BEEP
1110 IF POINT(XI-X1,YI)=1 THEN X1=-4:BEEP:GOTO 1040
1120 IF POINT(XI,YI+Y1)=1 THEN X1=-4:BEEP:GOTO 1040
1130 IF POINT(XI,YI+Y1)=4 THEN X1=4:BEEP:GOTO 1040
1140 IF POINT(XI-X1,YI)=4 THEN X1=4:BEEP:GOTO 1040
1150 REM *** MARCAOOR ***
1160 IF XI>255 THEN X1=-4:Y1=R:X=126:Y=0:PLAY"05AB0040D":SCREEN 1
:GOTO 1190
1170  IF XI<0 THEN PLAY"05ABC040D":SCREEN 1:GOTO1200
1180 GOTO 980
1190 A=A+1:LOCATE 0,6:PRINT"****** PUNTO PARA LA             R
AQUETA NEGRA ******":LOCATE 3,11:PRINT;Q$" NEGRA=";A:PRINT"   ";N
$" AZUL=";8: FOR V=1 TO1400:NEXT V:IF A=T THEN GOTO 1210 ELSE SCR
EEN 3:GOTO 960
1200 KEY OFF: 8=8+1:LOCATE 0,6:PRINT"****** PUNTO PARA LA
        RAQUETA AZUL ******":LOCATE 3,11:PRINT N$" AZUL=";8:LOCA
TE 3,12:PRINT Q$"  NEGRA=";A:FOR V=1 TO1400:NEXT V:IF B=T THEN GO
TO 1220 ELSE GOTO 930
1210 LOCATE 0,16: PRINT "HAS GANADO ";Q$",RAQUETA NEGRA":GOTO 182
0
1220 LOCATE 0,16: PRINT "HAS GANAOD ";N$",RAQUETA AZUL"
```

```
1230 GOTO 1820
1240 REM **** DATOS PRELIMINARES PARA 1 JUGADOR ****
1250 CLS:BEEP:LOCATE 1,10: LINE INPUT "NOMBRE DEL JUGADOR: ";Q$:N$
="MSX-BORG"
1260 CLS:BEEP:LOCATE 0,7:PRINT"****ELIJA NIVEL DE JUEGO ****":LOC
ATE 0,9 :LINE INPUT"DE 4 A 8: ";R$
1270 R=VAL(R$)
1280 IF R<4 OR R>8 THEN 1260
1290 CLS:BEEP:LOCATE 0,10: LINE INPUT "A CUANTOS PUNTOS SERA EL F
IN DEL MACH ?";T$:T=VAL(T$)
1300 IF T<=0 OR T>25 THEN 1290
1310 REM *** INSTRUCCIONES 1 JUGADOR ***
1320 CLS:LOCATE 10,6:PRINTQ$
1330 LOCATE 3,10:PRINT"JUEGAS A LA IZQUIERDA"
1340 LOCATE 3,12:PRINT"TU RAQUETA ES LA NEGRA"
1350 LOCATE 3,14:PRINT"PARA MOVER LA RAQUETA"
1360 LOCATE 3,16:PRINT"UTILIZA EL CURSOR"
1370 FOR G=1 TO 4500:NEXT G
1380 FOR K=1 TO 25:PRINT:BEEP:NEXT K
1390 REM **** MOVIMIENTO RAQUETA 2 JUGADORES ****
1400 GOTO 920
1410 A$=INKEY$
1420 IF X1=-4 GOTO 1480
1430 IF A$="A" OR A$="a" THEN J=J-4:PRESET(J+4,K):PRESET(J+4,K-4)
:PRESET(J+4,K+4)
1440 IF A$="S" OR A$="s" THEN J=J+4:PRESET(J-4,K-4):PRESET(J-4,K)
:PRESET(J-4,K+4)
1450 IF A$="W" OR A$="w" THEN K=K-4:PRESET(J,K+8)
1460 IF A$="Z" OR A$="z" THEN K=K+4:PRESET(J,K-8)
1470 IF X1=4 GOTO 1530
1480 IF A$="P" OR A$="p" THEN L=L+4:PRESET(L-4,M-4):PRESET(L-4,M)
:PRESET(L-4,M+4)
1490 IF A$="O" OR A$="o" THEN L=L-4:PRESET(L+4,M-4):PRESET(L+4,M)
:PRESET(L+4,M+4)
1500 IF A$="L" OR A$="l" THEN M=M+4:PRESET(L,M-8)
1510 IF A$="O" THEN M=M-4:PRESET(L,M+8)
1520 REM **** LIMITES DE LAS RAQUETAS ****
1530 IF K<=6 THEN K=6
1540 IF K>=186 THEN K=186
1550 IF J<0 THEN J=0
1560 IF J>122 THEN J=122
1570 IF M<=6 THEN M=6
1580 IF M>=186 THEN M=186
1590 IF L>255 THEN L=255
1600 IF L<130 THEN L=130
1610 RETURN
1620 REM  **** MOVIMIENTO DE LA RAQUETA DE 1 JUGADOR *****
1630  D=STICK(0)
1640 IF D=7 THEN J=J-4:PRESET(J+4,K):PRESET(J+4,K-4):PRESET(J+4,K
+4)
1650 IF D=3 THEN J=J+4:PRESET(J-4,K-4):PRESET(J-4,K):PRESET(J-4,K
+4)
1660 IF D=1 THEN K=K-4:PRESET(J,K+8)
1670 IF D=5 THEN K=K+4:PRESET(J,K-8)
1680 REM **** LIMITES DE LA RAQUETA ****
1690 IF K<=6 THEN K=6
1700 IF K>=186 THEN K=186
```

```
1710 1F J<O THEN J=O
1720 IF J>122 THEN J=122
1730 1F X1>O THEN 1810
1740 REM **** MOVIM1ENTO AUTOMATICO DE LA RAQUETA DE LA MAQUINA E
N LA MODAL1DAD DE 1 JUGADOR ****
1750 1F Y1>O AND  M<Y1 THEN M=M+R:PRESET(L,M-R-2):PRESET(L,M-R):P
RESET(L,M-R-5)
1760 IF Y1<O AND M>YI THEN M=M-R:PRESET(L,M+R+2):PRESET(L,M+R):PR
ESET(L,M+R+5)
1770 1F XI<100 AND L>134 AND J<100 THEN L=L-4:PRESET(L+4,M-4):PRE
SET(L+4,M):PRESET(L+4,M+4)
1780 1F X1>L-4 AND L<248 AND YI<M AND Y1>M-60 THEN L=L+4:PRESET(L
-4,M-4):PRESET(L-4,M):PRESET(L-4,M+4)
1790 1F X1>L-4 AND L<248 AND YI>M AND YI<M+60 THEN L=L+4:PRESET(L
-4,M-4):PRESET(L-4,M):PRESET(L-4,M+4)
1800 1F X1>110 AND L<236 AND J>100 THEN L=L+4:PRESET(L-4,M-4):PRE
SET(L-4,M):PRESET(L-4,M+4)
1810 RETURN
1820 LOCATE O,20:PR1NT"QU1ERES JUGAR OTRA VEZ S/N "
1830 U$=INKEY$
1840 1F U$="N"THEN GOTO 1880
1850 IF U$="S"THEN A=O:B=O:GOTO 610
1860 IF U$<>"N"AND U$<>"S" THEN BEEP:T=O: GOTO 1820
1870 GOTO 1830
1880 END
```



BASE 7

```
5 LIST
10 SCREEN 1:KEY OFF
20 TABLA=BASE(7)
30 CARACTER$="W"
40 DIREC=TABLA+ASC(CARACTER$)*8
50 FOR X=DIREC TO DIREC+7
60 READ H
70 VPOKE X,H
80 NEXT
85 LOCATE 14,10:PRINT"W"
90 DATA 24,60,90,126,60,24,231,153
100 GOTO 100
110 '
120 'OO PRUEBA A SUSTITUIROO
130 '      LA LINEA 85 POR:
140 'VPOKE6480,ASC(CARACTER$)
150 'VERAS QUE HACE LO MISMO
```

LA GRUTA

```
10 ' 000000000000000000000000000000
20 ' 00000                    00000
30 ' 00000      La Gruta      00000
40 ' 00000                    00000
60 ' 00000                    00000
70 ' 00000 Septiembre de 1986 00000
80 ' 00000                    00000
90 ' 000000000000000000000000000000
100 '
110 '
120 '            PORTADA
130 '
140 COLOR 15,1,1:SCREEN 2,0,1
150 '              L
160 DRAW"s4C6BM15,72R3U1R2D1R2D6L1D7R1D6L1D4L1D1R1D1R1D1R6D1R4D3R
3D2L1D1L9D1L3U1L3U2L3U7L2U7R1U4R1U10L1U4R1"
170 PAINT(16,74),6
180 '              A
190 DRAW"C15BM45,104U2L1U9R1U5L2U8R1E1U2R1U3R5U4E1R4D1R3D3R2D3R2F
1D8R2D13L1D2L1D2L4D1L3U3E1U6R3U6L2H1U7L5D1L2D1L2D5L2R2D3L1D6R1D5R
1D2R1D2L5U1BM50,85R7D1BM50,88R3D1R1D1R8"
200 PAINT(47,101),15
210 PAINT(54,87),15
220 '              G
230 DRAW"bm114,72C10U1L2U2L8D1L5D4L1D3L1D7R1D7L1D4R1D2R2D7R3D1R7D
```

```
1R6U1R1U5L2U5H1u7L2u3l6d3r2D8L3U1L1U2L1U5L1U6L1U5R5U1R1U1R2U1R1r3
u1"
240 PAINT(106,74),10
250 '              R
260 DRAW"C5BM125,70D6R2D11L1D1G3D2F1R4D8G1D1R3D2R2D1R4H3U4R1U6L1U
4R2F6D3R1D2R1D4R3U2R1U4R2U3H4L2U2L2U1L1U3L3U1R1U1R2U1R4U3R1U1R1U3
R1U4L3H3L5U1L2U1L3U1L3G3R1BM133,72R3D2R3D3L1G1D1L1G1D1L3U1R1U2L1U
3R1U4R1"
270 PAINT(127,72),5
280 '              U
290 DRAW"C13BM155,72R3U1R2D1R2D6L1D7R1D6L1D4L1D1R1D1R1D1R2D1R4U3R
2U2E2U4H1U2R2H2U4R2U3H2E2R1E2R2F2D4G1D3F2D2G3D5F2D2G4D2L5D3L3G2U2
L5H2L2U2L2U5E1U3H3U2R2U6E2U2H3U2"
300 PAINT(157,73),13
310 '              T
320 DRAW"C3BM187,70R3E2R3D2R6E3R5F2R3D1R2F1D3G1D1G2H3L1G2L2G2D5F2
D4G3D5R2F1D6G3L2H2G1L1H1U4E1U5E2U3H2U2R2U4H2R2U4H2L3D2G1L3H2U2H2U
2"
330 PAINT(189,72),3
340 '              A
350 DRAW"C9BM223,104U2L1U9R1U5L2UBR1E1U2R1U3R5U4E1R4D1R3D3R2D3R2F
1D8R2D13L1D2L1D2L4D1L3U3E1U6R3U6L2H1U7L5D1L2D1L2D5L2R2D3L1D6R1D5R
1D2R1D2L5U1BM228,85R7D1BM228,88R3D1R1D1R8"
360 PAINT(225,101),9
370 PAINT(232,87),9
380 '
410  N=(N+1)MOD(15):VDP(7)=N:FOR I=1 TO 10 :NEXT
420 FF=FF+1:IF FF>227 THEN440
430 GOTO 410
440 '
450 COLOR 15,1,1:SCREEN1,2,0:KEY OFF:WIDTH 32
460 LOCATE 6,10:PRINT"UN MOMENTO POR FAVOR"
470 FOR K=1 TO 13:B$="":FORI=1TO 32 :READ A$:B$=B$+CHR$(VAL("&H"+
A$)):NEXT:SPRITE$ (K)=B$:NEXT
480 '
490 FOR I=2008 TO 2039:READ A$:VPOKE I,VAL("&h"+A$):NEXT
500 VPOKE 8192+31,&HF6
510 '
520 ' creacion de la pantalla
530 '
540 CLS
550 FOR I=6144 TO 6175 STEP 2:VPOKE I,251:VPOKE I+1,253:NEXT
560 FOR I=6176 TO 6206 STEP 2:VPOKE I,252:VPOKE I+1,254:NEXT
570 FOR I=6208 TO 6848 STEP64:VPOKE I,251:VPOKE I+1,253:NEXT
580 FOR I=6240 TO 6880 STEP64:VPOKE I,252:VPOKE I+1,254:NEXT
590 FOR I=6848 TO 6879 STEP2:VPOKE I,251:VPOKE I+1,253:NEXT
600 FOR I=6880 TO 6911 STEP2:VPOKE I,252:VPOKE I+1,254:NEXT
610 FOR I=6238 TO 6878 STEP64:VPOKE I,251:VPOKE I+1,253:NEXT
620 FOR I=6270 TO 6910 STEP64:VPOKE I,252:VPOKE I+1,254:NEXT
630 FOR I=6214 TO 6406 STEP64:VPOKE I,251:VPOKE I+1,253:NEXT
640 FOR I=6246 TO 6438 STEP64:VPOKE I,252:VPOKE I+1,254:NEXT
650 FOR I=6598 TO 6662 STEP64:VPOKE I,251:VPOKE I+1,253:NEXT
660 FOR I=6630 TO 6694 STEP64:VPOKE I,252:VPOKE I+1,254:NEXT
670 FOR I=6348 TO 6796 STEP64:VPOKE I,251:VPOKE I+1,253:NEXT
680 FOR I=6380 TO 6828 STEP64:VPOKE I,252:VPOKE I+1,254:NEXT
690 FOR I=6226 TO 6674 STEP64:VPOKE I,251:VPOKE I+1,253:NEXT
700 FOR I=6258 TO 6706 STEP64:VPOKE I.252:VPOKE I+1,254:NEXT
```

```
710 FOR I=6360 TO 6488 STEP64:VPOKE I,251:VPOKE I+1,253:NEXT
720 FOR I=6392 TO 6520 STEP64:VPOKE I,252:VPOKE I+1,254:NEXT
730 FOR I=6680 TO 6808 STEP64:VPOKE I,251:VPOKE I+1,253:NEXT
740 FOR I=6712 TO 6840 STEP64:VPOKE I,252:VPOKE I+1,254:NEXT
750 '
760 ' definicion de funciones
770 '
780 DEFFNC(X,Y)=((X+8)\8)+((Y\8)*32)+6144
790 DEFFNP(X,Y)=((X+8)\8)+(((Y+28)\8)*32)+6144
800 DEFFND(X,Y)=((X+16)\8)+(((Y+20)\8)*32)+6144
810 DEFFNI(X,Y)=(X\8)+(((Y+20)\8)*32)+6144
820 '
830 DEFFNM(MX,MY)=((MX+8)\8)+((MY\8)*32)+6144
840 DEFFNG(MX,MY)=((MX+8)\8)+(((MY+16)\8)*32)+6144
850 DEFFNH(MX,MY)=(MX\8)+(((MY+8)\8)*32)+6144
860 DEFFNT(MX,MY)=((MX+16)\8)+(((MY+8)\8)*32)+6144
870 '
880 DEFFNL(BX,BY)=((  Y-2)\8)+(((BY+2)\8)*32)+6144
890 DEFFNR(BX,BY)=((2X+16)\8)+(((BY+2)\8)*32)+6144
900 '
910 ' inicializacio  de variables
920 '
930 X=14:Y=80:PO=1:FA=6:FI=11:JJ=21
940 C1=7:C2=10:MX=222:MY=156:VI=5
950 UU=&HF6:OO=&H56:WW=5:YY=15
960 SOUND 7,&B110001
970 '
980 STRIG(0) ON :ON      G GOSUB 1460
990 '
1000 ' bucle principal
1010 '
1020 SC=FNC(X,Y):SP=FNP(X,Y)
1030 SD=FND(X,Y):SI=FNI( ,Y)
1040 GOSUB 1800
1050 GOSUB 120
1060 IF X+12>MX AND X<MX+12 AND Y+12>MY AND Y<MY+12 THEN GOSUB 21
10
1070 IF MA=0 THEN GOTO 1140
1080 BX=BX+CX:SU=SU+1.5
1090 SOUND 6,SU:SOUND 8,5
1100 BR=FNR(BX,BY):BL=FNL(BX,BY)
1110 IF CX>0 AND VPEEK(BR)<>32 OR CX<0 AND VPEEK(BL)<>32 THEN GOS
UB 1620
1120 GOSUB 1740
1130 IF BX+12>MX AND BX<MX+12 AND BY+12>MY AND BY<MY+12 THEN GOSU
B 2040
1140 SWAP C1,C2:SWAP UU,OO:SWAP WW,YY
1150 VPOKE 8192+31,UU
1160 GOTO 1020
1170 '
1180 ' movimiento del hombre
1190 '
1200 D=STICK(CT)
1210 IF D=0 THEN GOTO 1260 ELSE JJ=21:PI=11:PA=6
1220 IF D=1 AND VPEEK(SC)=32 THEN Y=Y-4:GOTO1260
1230 IF D=3 AND VPEEK(SD)=32 AND VPEEK(SC)=32 AND VPEEK(SP)=32 TH
EN X=X+4:PO=1:GOTO 1260
```


TODO SOBRE EL
AMSTRAD
N.º 17 690 Ptas.

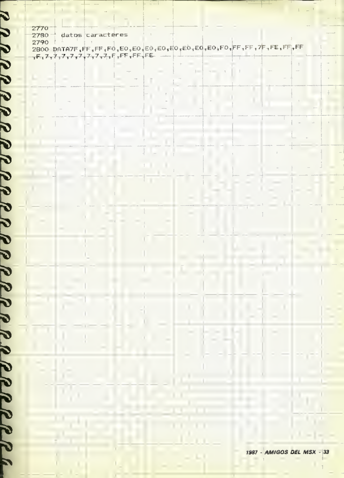
PLUTON


LOS MEJORES
PROGRAMAS
COMERCIALES
MADE IN TAIWAN

```
1240 IF O=5 AND VPEEK(SP)=32 THEN Y=Y+4:GOTO 1260
1250 IF D=7 AND VPEEK(SI)=32 AND VPEEK(SC)=32 AND VPEEK(SP)=32 TH
EN X=X-4:PO=2
1260 ON PO GOSUB 1310,1380
1270 RETURN
1280 '
1290 'posturas del hombre
1300 '
1310 PUTSPRITE 3,(X,Y),10,3
1320 PUTSPRITE 4,(X,Y),8,4
1330 PUTSPRITE 5,(X,Y+8),12,5
1340 PUTSPRITE 6,(X+1,Y+JJ),8,PA
1350 RETURN
1360 '
1370 '
1380 PUTSPRITE 3,(X,Y),10,8
1390 PUTSPRITE 4,(X,Y),8,9
1400 PUTSPRITE 5,(X,Y+8),12,10
1410 PUTSPRITE 6,(X-1,Y+JJ),8,PI
1420 RETURN
1430 '
1440 ' patada
1450 '
1460 IF X<16 OR X>220 THEN RETURN
1470 IF PO=1 AND VPEEK(SO)<>32 AND VPEEK(SD+3)=32 THEN PA=7:CX=4:
BX=((X+16)\16)*16:GOSUB 1510
1480 IF PO=2 AND VPEEK(S1)<>32 THEN P1=12:CX=-4:BX=(X\16)*16:GOSU
B 1510
1490 RETURN
1500 '
1510 MA=1:JJ=17
1520 STRIG(0)OFF
1530 BY=(((Y+20)\16)*16)-1
1540 GOSUB 1740
1550 BR=FNR(BX,BY):BL=FNL(BX,BY)
1560 Y=Y-16
1570 ON PO GOSUB 1310,1380
1580 U1=32:U2=32:U3=32:U4=32
1590 GOSUB 1710
1600 RETURN
1610 '
1620 MA=0:JJ=21:PI=11:PA=6
1630 U1=251:U2=253:U3=252:U4=254
1640 IF Y<16 THEN Y=Y+16
1650 GOSUB 1710
1660 STRIG(0) ON
1670 SOUND 8,0:SU=0
1680 IF FG=1 THEN FG=0:MY=156:MX=222
1690 RETURN
1700 '
1710 VPOKE BL+1,U1:VPOKE BL+2,U2:VPOKE BL+33,U3:VPOKE BL+34,U4
1720 IF MA=0 THEN BY=209
1730 '
1740 PUTSPRITE 1,(BX,BY),WW,1
1750 PUTSPRITE 2,(BX,BY),6,2
1760 RETURN
1770 '
```

```
1780 'movimiento del monstruo
1790 '
1800 CM=FNM(MX,MY):PM=FNG(MX,MY)
1810 IM=FNH(MX,MY):DM=FNT(MX,MY)
1820 IF VE>4 OR VPEEK(CM)<>32 OR VPEEK(PM)<>32 THEN VE=0:TI=0:TD=0:FU=0
1830 IF TI=1 AND VPEEK(IM)=32 OR TD=1 AND VPEEK(DM)=32 THEN VE=VE+1
1840 IF FU=1 THEN MY=MY+(DD*4):GOTO 1940
1850 IF RA=1 AND MX=X THEN RA=2
1860 IF RA=2 AND MY=Y OR RA=2 AND VPEEK(PM)<>32 THEN RA=1
1870 ON RA GOTO 1880,1900
1880 IF MX>X AND VPEEK(IM)=32 THEN MX=MX-4:GOTO 1940
1890 IF MX<X AND VPEEK(DM)=32 THEN MX=MX+4:GOTO 1940
1900 IF MY>Y AND VPEEK(CM)=32 THEN MY=MY-4:GOTO 1940
1910 IF MY<Y AND VPEEK(PM)=32 THEN MY=MY+4
1920 '
1930 'choque del monstruo con paredes
1940 '
1950 IF MY=Y AND VPEEK(IM)<>32 THEN TI=1: GOSUB 2000
1960 IF MY=Y AND VPEEK(DM)<>32 THEN TD=1:GOSUB 2000
1970 PUTSPRITE 13,(MX,MY),C1,13
1980 RETURN
1990 '
2000 FU=1:DD=INT(RND(1)*3)-1:IF DD=0 THEN 2000 ELSE RETURN
2010 '
2020 ' monstruo eliminado
2030 '
2040 TN=TN+50:FG=1
2050 SOUND 2,30:SOUND 9,16:SOUND 13,15:SOUND 12,15
2060 MY=209
2070 RETURN
2080 '
2090 ' muertes
2100 '
2110 VI=VI-1
2120 SOUND 9,16:SOUND 2,100:SOUND 13,14:SOUND 12,5
2130 MY=156:MX=222:X=14:Y=80
2140 FOR I=1 TO 1000:NEXT
2150 SOUND 7,&B111111:SOUND 9,0
2160 SOUND 7,&B110001
2170 IF VI=0 THEN 2220
2180 RETURN
2190 '
2200 ' FIN DE PARTIDA
2210 '
2220 SCREEN 0:LOCATE 2,8:PRINT"LO SIENTO TUS VIDAS HAN ACABADO"
2230 LOCATE 5,15:PRINT"PUNTOS CONSEGUIDOS=";TN
2240 LOCATE 1,20:PRINT"LO INTENTAS DE NUEVO SI O NO [S/N]"
2250 X$=INKEY$
2260 IF X$="S"OR X$="s" THEN RUN
2270 IF X$="n"OR X$="N" THEN SCREEN 0:END
2280 GOTO 2250
2290 '
2300 ' datos de los sprites
2310 '
2320 ' sprites ladrillo
```

```
2330 '
2340 DATA 7F,FF,FF,F0,E0,E0,E0,E0,E0,E0,E0,E0,F0,FF,FF,7F,FE,FF,F
F,F,7,7,7,7,7,7,7,7,F,FF,FF,FE,0,0,0,F,3F,3F,3F,3F,3F,3F,3F,3F,F,
0,0,0,0,0,0,Fc,fc,Fc,Fc,Fc,Fc,Fc,Fc,Fc,Fc,0,0,0
2350 '
2360 ' pelo --->
2370 '
2380 DATA 1,3,7,6,6,6,0,0,0,0,0,0,0,0,0,0,80,E0,F0,80,80,0,0,0,0,
0,0,0,0,0,0,0
2390 ' cara y brazo --->
2400 '
2410 DATA 0,0,1,1,1,3,3,1,0,1,1,1,1,1,1,0,0,0,60,60,F0,E0,C0,80,0
,80,80,80,80,F6,F6,0
2420 '
2430 ' cuerpo --->
2440 '
2450 '
2460 DATA 2,3,6,7,5,6,7,6,7,5,6,7,7,2,0,0,60,F0,B8,68,D8,F8,A8,F8
,E8,B8,E8,F8,D8,98,10,0,0
2470 '
2480 ' piernas andando --->
2490 '
2500 DATA 6,6,6,7,7,0,0,0,0,0,0,0,0,0,0,0,30,30,30,38,BC,0,0,0,0,
0,0,0,0,0,0
2510 ' piernas patada --->
2520 '
2530 DATA 0,0,0,0,0,6,6,6,7,7,0,0,0,0,0,0,1,1,3,3F,7F,0,0,0,0,80,
0,0,0,0,0,0
2540 ' pelo <---
2550 '
2560 DATA 1,7,F,1,1,0,0,0,0,0,0,0,0,0,0,0,80,C0,E0,60,60,60,0,0,0
,0,0,0,0,0,0,0
2570 '
2580 ' cara y brazo <----
2590 '
2600 DATA 0,0,6,6,F,7,3,1,0,1,1,1,1,6F,6F,0,0,0,80,80,80,C0,C0,80
,0,80,80,80,80,80,80,0
2610 '
2620 ' cuerpo <----
2630 '
2640 DATA 6,F,1D,16,1B,1F,15,1F,17,1D,17,1F,1B,19,B,0,40,C0,60,E0
,A0,60,E0,60,E0,A0,60,E0,E0,40,0,0
2650 '
2660 ' piernas andando <-----
2670 '
2680 DATA 0,C,C,C,1C,3D,0,0,0,0,0,0,0,0,0,0,0,60,60,60,E0,E0,0,0,
0,0,0,0,0,0,0,0
2690 '
2700 ' piernas patada <----
2710 '
2720 DATA 80,80,C0,FC,FE,0,0,0,0,1,0,0,0,0,0,0,0,0,0,0,0,60,60,60
,E0,E0,0,0,0,0,0,0
2730 '
2740 ' monstruo
2750 '
2760 DATA49,47,2F,19,B9,7F,7F,7A,32,58,B9,1D,2F,45,44,CC,92,E2,F4
,98,9D,FE,FE,5E,4C,1A,91,B8,F4,A2,22,33
```



```
2770
2780   datos caracteres
2790
2800 DATA7F,FF,FF,F0,E0,E0,E0,E0,E0,E0,E0,E0,F0,FF,FF,7F,FE,FF,FF
,F,7,7,7,7,7,7,7,7,F,FF,FF,FE
```

Para Programadores MSX tu fiel compañero.

GUIA DEL PROGRAMADOR MSX

Esto no es un libro para el principiante novato, al contrario introduce al programador MSX "dentro" del ordenador, para mostrarle exactamente como funciona y como obtener el máximo partido

Los autores han dividido su libro en dos partes.

La primera parte cubre el diseño del sistema como el vocabulario de BASIC se relaciona con los ordenadores MSX y una introducción código maquina Encontrara explicaciones detalladas sobre la organización de la memoria los modos de pantalla y los circuitos de vide y sonido

La segunda parte se dedica al uso del lenguaje ensamblador en el sistema MSX Los principales apartados incluyen los puntos

— El procesador de pantalla de vídeo
— El circuito de sonido AY-3-8910
— Entradas/Salidas

Tanto si necesitas escribir programas de alta eficacia o solamente quieres como trabaja tu ordenador, este libro sera inestimable Pensamos que rapidamente se convertira en el texto base para aquellos programadores que quieren hacer algo mas que escribir programas en BASIC

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La llegada de standar MSX, marca un paso significativo dentro del mundo de los ordenadores domésticos Ofrece infinidad de excitantes oportunidades para programadores y usuarios

Este libro supone que no tienes conocimientos previos sobre codigo maquina Emexplicando las equivalentes en codigo máquina de las principales Instrucciones en Basic tales como IF, FOR/NEXT PRINT, GOTO GOSUB etc. Continúa con la descripción muy detallada de las rutinas individuales de un simple juego "INVASOR DEL ESPACIO", y cómo se enlazan estas rutinas que puedes aprovechar en tus programas en Basic

- Aprende lo fácil que es incorporar rutinas en codigo máquina dentro de tus programas en Basic
- Usa el codigo maquina para crear sonido y graficos
- Diseña tus propios caracteres y "escenarios" con dos programas fáciles de usar.

Tanto si simplemente desea incluir rutinas para acelerar y mejorar tus programas en Basic, como si quieres un programa completo y potente en codigo maquina, encontraras este libro extremadamente útil En el esta suprimida la teoria que dificulta el codigo máquina y se presenta de una forma practica y divertida de aprenderlo

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ta-ma

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SUPER BABY



LOS MEJORES PROGRAMAS COMERCIALES MADE IN TAIWAN



prácticas con...



Microordenador
COMMODORE

Microordenadores
AMSTRAD, MSX, PC



Para saber cómo hablar con los ordenadores

El Curso CEAC a Distancia BASIC + Microordenadores le va a introducir paso a paso, con un cuidado método en uno de los temas mas apasionantes de nuestros dias **la programación de ordenadores.**

Al aprender PRACTICANDO desde un principio a programar BASIC lenguaje diseñado especialmente para dar los primeros pasos en programacion estará sentando las bases para el estudio de cualquier otro lenguaje de alto nivel

Curso CEAC de BASIC + Microordenadores un dialogo permanente con el ordenador

Otros Cursos:
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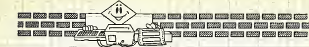
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AMIGOS DEL MSX



SUMARIO

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DRAW EDITOR

```
10 REM ****************************
20 REM *                          *
30 REM *      MSX - DRAW EDITOR   *
40 REM *                          *
50 REM ****************************
60 REM
70 REM *       INICIALIZACION     *
80 REM *       Y PRESENTACION     *
90 REM
100 CLEAR 2000:MAXFILES=2
110 COLOR 8,1,1:SCREEN 2
120 LINE(56,32)-(199,159),,B
130 LINE(57,33)-(198,158),,B
140 PSET(85,93)
150 DRAW"M93,60M99,60M102,73M103,73M106,60M112,60M118,858M120,93M
113,93M110,80M109,80M106,93M99,93M96,80M95,80M92,93M85,93BM121,93
M135,93"
160 CIRCLE(135,83),10,,4.712,1.571
170 PSET(134,73)
180  DRAW"M126,73M125,72M124,71M124,70M125,69M126,68M148,68BM152,
60M128,60":CIRCLE(128,70),10,,1.571,4.713
190 PSET(129,80)
200  DRAW"M137,80M138,81M139,82M139,83M137,85M118,858M152,60M157,
70M162,60M170,60M162,76M170,93M162,93M157,83M152,93M144,93M152,76
M148,68"
210 PAINT(130,65):PRESET(85,110)
```

```
220 OPEN"GRP:"AS#1
230 PRINT#1,"DRAW EDITOR"
240 PRESET(85,140)
250 'RAW"CBR50U7R4F1D2G1L3BD3BR1U9R4F1D2G1L3BD3BR1D2R2U2R2BG2R4U2
D2R2U2R2D2R2U2BU2L0BL6L0BR11BD1E1D4L5R7R2U4L2D2R1BR3R2D2L3R1U4R2D
4R2R2U2L2U2R2"
260 FDRK=0TO2000:NEXTK
270 DIM DM$(44):FDR N=1 TO 44
280 READ DM$(N):NEXT N
290 CDLOR 1,8,8:SCREEN 2
300 DRAW"C1BM7,0R242"
310 FOR N=6 TO 174 STEP 8:COLOR 15
320 DM=DM+1:IF N=166 THEN PRESET(19,158):PRINT#1,"BS"
330 IF N<40 OR N>105 THEN PRESET(7,N):PRINT#1,DM$(DM):CDLOR 1:PRE
SET(52,N):PRINT#1,DM$(DM+22) ELSE PRESET(52,N):DRAW"C11":DRAW DM$
(DM):COLOR 11:PRESET(64,N):PRINT#1,DM$(DM+22)
340 NEXTN:DRAW"C1BM7,187R52BR137R52"
350 COLOR 15:PRESET(66,184)
360 PRINT#1,"(PULSA UNA TECLA)"
370 IF INKEY$<>""THEN 370
380 IF INKEY$="" THEN 380
390 DEFINT A-Z:CP=15:CS=12:CB=1
400 COLOR CP,CS,CB:SCREEN 2,2
410 SPRITE$(1)=CHR$(0)+CHR$(0)+CHR$(0)+CHR$(0)+CHR$(127)+CHR$(0)+
CHR$(0)+CHR$(0)
420 SPRITE$(2)=CHR$(0)+CHR$(127)+CHR$(65)+CHR$(65)+CHR$(65)+CHR$(
65)+CHR$(127)+CHR$(0)
430 SPRITE$(3)=CHR$(28)+CHR$(34)+CHR$(65)+CHR$(65)+CHR$(65)+CHR$(
65)+CHR$(34)+CHR$(28)
440 SPRITE$(4)=CHR$(224)+CHR$(240)+CHR$(240)+CHR$(120)+CHR$(20)+C
HR$(10)+CHR$(5)+CHR$(3)
450 SPRITE$(5)=CHR$(8)+CHR$(30)+CHR$(40)+CHR$(28)+CHR$(10)+CHR$(6
0)+CHR$(8)+CHR$(0)
460 SPRITE$(6)=CHR$(28)+CHR$(34)+CHR$(32)+CHR$(28)+CHR$(2)+CHR$(3
4)+CHR$(28)+CHR$(0)
470 SPRITE$(7)=CHR$(32)+CHR$(32)+CHR$(32)+CHR$(32)+CHR$(32)+CHR$(
32)+CHR$(62)+CHR$(0)
480 SPRITE$(8)=CHR$(65)+CHR$(99)+CHR$(54)+CHR$(28)+CHR$(28)+CHR$(
54)+CHR$(99)+CHR$(65)
490 SPRITE$(9)=CHR$(170)+CHR$(84)+CHR$(170)+CHR$(84)+CHR$(170)+CH
R$(84)+CHR$(170)+CHR$(0)
500 A$=CHR$(255)+CHR$(255)+CHR$(255)+CHR$(0)+CHR$(0)+CHR$(0)+CHR$
(0)+CHR$(0)
510 B$=CHR$(0)+CHR$(0)+CHR$(0)+CHR$(0)+CHR$(0)+CHR$(255)+CHR$(255
)+CHR$(255)
520 C$=CHR$(254)+CHR$(254)+CHR$(254)+CHR$(0)+CHR$(0)+CHR$(0)+CHR$
(0)+CHR$(0)
530 D$=CHR$(0)+CHR$(0)+CHR$(0)+CHR$(0)+CHR$(0)+CHR$(254)+CHR$(254
)+CHR$(254)
540 SPRITE$(10)=A$+B$+C$+D$
550 A$=CHR$(0)+CHR$(0)+CHR$(0)+CHR$(255)+CHR$(255)+CHR$(255)+CHR$
(255)+CHR$(255)
560 B$=CHR$(255)+CHR$(255)+CHR$(255)+CHR$(255)+CHR$(255)+CHR$(0)+
CHR$(0)+CHR$(0)
570 C$=CHR$(0)+CHR$(0)+CHR$(0)+CHR$(254)+CHR$(254)+CHR$(254)+CHR$
(254)+CHR$(254)
580 D$=CHR$(254)+CHR$(254)+CHR$(254)+CHR$(254)+CHR$(254)+CHR$(0)+
```

```
CHR$(0)+CHR$(0)
590 SPRITE$(11)=A$+B$+C$+D$
600 SPRITE$(12)=CHR$(0)+CHR$(16)+CHR$(0)+CHR$(0)+CHR$(0)+CHR$(0)+
CHR$(0)+CHR$(0)
610 SPRITE$(13)=CHR$(16)+CHR$(40)+CHR$(16)+CHR$(0)+CHR$(0)+CHR$(0
)+CHR$(0)+CHR$(0)
620 A$=CHR$(0)+CHR$(115)+CHR$(34)+CHR$(34)+CHR$(34)+CHR$(35)+CHR$
(0)+CHR$(0)
630 B$=CHR$(0)+CHR$(0)+CHR$(0)+CHR$(0)+CHR$(0)+CHR$(0)+CHR$(0)+CH
R$(0)
640 D$=CHR$(0)+CHR$(156)+CHR$(148)+CHR$(156)+CHR$(144)+CHR$(144)+
CHR$(0)+CHR$(0):D$=B$
650 SPRITE$(14)=A$+B$+C$+D$
660 A$=CHR$(255)+CHR$(255)+CHR$(255)+CHR$(255)+CHR$(255)+CHR$(255
)+CHR$(255)+CHR$(0)
670 C$=CHR$(254)+CHR$(254)+CHR$(254)+CHR$(254)+CHR$(254)+CHR$(254
)+CHR$(254)+CHR$(0)
680 SPRITE$(15)=A$+B$+C$+D$
690 ERASE DM$:GOSUB 3350
700 REM
710 REM *                            *
720 REM *   ACTIVACION  COMANDOS   *
730 REM *                            *
740 REM
750 ON STRIG GOSUB 2100
760 ON KEY GOSUB 2170,2300,2320,2340,2360:S1=1:S2=2
770 STRIG(0)ON:KEY(1)ON
780 'ON STOP GOSUB 1490:STOP ON
790 IF F5>0 AND DR(S)=5 THEN 980
800 K$=INKEY$:D=STICK(0)
810 IFP=3ORP=4THENXS=-10:GOTO 960
820 IFD=1THENY=Y-I
830 IFD=2THENX=X+I:Y=Y-I
840 IFD=3THENX=X+I
850 IFD=4THENX=X+I:Y=Y+I
860 IFD=5THENY=Y+I
870 IFD=6THENX=X-I:Y=Y+I
880 IFD=7THENX=X-I
890 IFD=8THENX=X-I:Y=Y-I
900 IFX<0THENX=0
910 IFX>255THENX=255
920 IFY<0THENY=0
930 IFY>191THENY=191
940 IF F5>0 AND DR(S)>3 THEN 980
950 XS=X-3:YS=Y-2
960 PUT SPRITE 4,(XS,YS),15,12
970 PUT SPRITE 5,(XS,YS),1,13
980 IFK$=CHR$(13)THEN P=1
990 IFK$=CHR$(8)THEN P=2
1000 IFK$=CHR$(18)THEN P=3:S=S+1
1010 IFK$=CHR$(127)THEN P=4:S=S-1
1020 IFK$=CHR$(24)THEN P=5
1030 IFK$=CHR$(9)THEN GOSUB 1700
1040 IFK$=CHR$(11)THEN GOSUB 2470
1050 ON P GOSUB 1140,1260,1420,1430,1560
1060 ON FF GOTO 1060
1070 GOTO 790
```

```
1080 YS=-10:RETURN 960
1090 REM
1100 REM *                            *
1110 REM *    SUB. DISENO FIGURA      *
1120 REM *                            *
1130 REM
1140 IF F5=0 OR S<>R THEN 1190 ELSE XB(R)=X:YB(R)=Y:CO(R)=CP:DR(R
)=FD:DR$(R)=CH$:CD=CP:S=R
1150 IF FD=4 AND FR=1 THEN PRESET(XA(R),YA(R))
1160 GOSUB 1800:R=R+1:CO(R)=CP:DR(R)=FD:CH$=""
1170 IF FD=3 THEN XA(R)=XA(S):YA(R)=YA(S):FR=1 ELSE XA(R)=X:YA(R)
=Y:FR=0
1180 IF FD=5 THEN PSET(X,Y):STRIG(0)ON:FR=1
1190 P=0:F5=0:S=R:RETURN
1200 REM
1210 REM *                            *
1220 REM *     SUB.CANCELACION        *
1230 REM *          FIGURA            *
1240 REM *                            *
1250 REM
1260 IF FD=5 THEN X=XA(R):Y=YA(R):PSET(X,Y),CO(S):STRIG(0)ON:FR=1
1270 IF R=S THEN 1350
1280 IF DR(S)=4 THEN FP=1:FR=1
1290 CD=CS:GOSUB 1800
1300 FOR N=S TO R-1
1310 XA(N)=XA(N+1):YA(N)=YA(N+1):XB(N)=XB(N+1):YB(N)=YB(N+1):CO(N
)=CO(N+1):DR(N)=DR(N+1):DR$(N)=DR$(N+1)
1320 NEXT N:R=R-1
1330 IF FP=1 THEN FP=0:GOSUB 2470
1340 IF R=S AND FR=0 THEN PSET(XA(R),YA(R)):FR=1
1350 P=0:F5=0:CH$="":RETURN
1360 REM
1370 REM *                            *
1380 REM *  SUB. PARPADEO  FIGURA     *
1390 REM *  PRECEDENTE/SIGUIENTE      *
1400 REM *                            *
1410 REM
1420 IF S>R-1 THEN S=R-1
1430 IF S<0 THEN S=0
1440 IF R=0 THEN RETURN
1450 IF DR(S)=4 THEN F5=1 ELSE F5=0
1460 CD=CS:GOSUB 1800
1470 FOR K=0 TO 50:NEXT K:IF FD=5 THEN X=XA(R):Y=YA(R):CH$=""
1480 CD=CO(S):GOSUB 1800
1490 RETURN
1500 REM
1510 REM *                            *
1520 REM *       SUB.PARPADEO         *
1530 REM *     FIGURA  ACTUAL         *
1540 REM *                            *
1550 REM
1560 IF R=100 THEN 3530
1570 IF F5=0 THEN F5=1
1580 S=R:CO(R)=CP:DR(R)=FD:DR$(R)=CH$:XB(R)=X:YB(R)=Y
1590 IF F5=1 AND FD=5 THEN GOSUB 1710:STRIG(0)OFF
1600 CD=CP:GOSUB 1800
1610 CD=CS:GOSUB 1800
```

```
1620 IFFD<>4THENPSET(XA(R),YA(R)),CP
1630 S=R:F5=2:RETURN
1640 REM
1650 REM *                        *
1660 REM *  SUB.FIJ.NUEVO ORIGEN  *
1670 REM *   FIGURA  A DISEÑAR    *
1680 REM *                        *
1690 REM
1700 IF P>0 OR R=100 THEN RETURN
1710 IF FR=1THEN PRESET(XA(R),YA(R))
1720 PSET(X,Y),CP:XA(R)=X:YA(R)=Y
1730 FR=1:S=R:RETURN
1740 REM
1750 REM *                        *
1760 REM *  SUB. SELECCION FIGURA *
1770 REM *         A  DISEÑAR     *
1780 REM *                        *
1790 REM
1800 ON DR(S) GOTO 1810,1820,1830,1850,1910
1810 LINE(XA(S),YA(S))-(XB(S),YB(S)),CD:RETURN
1820 LINE(XA(S),YA(S))-(XB(S),YB(S)),CD,B:RETURN
1830 RX=ABS(XA(S)-XB(S)):RY=ABS(YA(S)-YB(S))
1840 CIRCLE(XA(S),YA(S)),SQR(RX^2+RY^2),CD,,,1.4*(RY+1E-05)/(RX+1
E-05):RETURN
1850 PUT SPRITE 4,(XB(S),YB(S)),CD,4
1860 PUT SPRITE 5,(XB(S),YB(S)),CD,4
1870 IF F5>0 AND P=1 THEN 1890
1880 FORK=0TO20:NEXTK:RETURN
1890 PRESET(XB(S),YB(S))
1900 PAINT(XA(S),YB(S)),CD:RETURN
1910 IF S<R THEN 1990
1920 PUTSPRITE4,(XB(S),YB(S)-1),CD,9
1930 PUTSPRITE5,(XB(S),YB(S)-1),CD,9
1940 J$=INKEY$:IF J$="" THEN 1990
1950 K$=J$:IF LEN(CH$)=255 THEN 1990
1960 IF ASC(J$)=1 THEN J$=INKEY$:J$=CHR$(1)+J$:GOTO 1980
1970 IF ASC(J$)<32 OR ASC(J$)=127 THEN 1990
1980 GOSUB 2010:CH$=CH$+J$
1990 COLOR CD:PRESET(XA(S),YA(S))
2000 PRINT#1,DR$(S):RETURN
2010 IF Y>191 THEN RETURN 1990
2020 IF X<248 THENX=X+8ELSEX=0:Y=Y+8
2030 RETURN
2040 REM
2050 REM *                        *
2060 REM *      SUB. MOVIMENTO    *
2070 REM *     PLUMA  1/8 PUNTO   *
2080 REM *                        *
2090 REM
2100 SWAP H,I:RETURN
2110 REM
2120 REM *                        *
2130 REM *      SUB. SELECCION    *
2140 REM *      OPCIONES MENU     *
2150 REM *                        *
2160 REM
2170 SWAP S1,S2:ON S1 GOTO 2180,2260
```

```
2180 FOR N=2 TO 5:KEY(N)OFF:NEXT N
2190 YC=-20:FF=0:GOSUB 2370
2200 IF P=5 AND FD=5 AND CH$="" THEN X=XA(R):Y=YA(R):F5=1
2210 IF FD=6 THEN 2580
2220 IF FD=7 THEN 3090
2230 IF FD=8 THEN 3330
2240 IF SS=1 THEN SS=0:GOTO 2470
2250 COLOR CP,CS,CB:RETURN
2260 FOR N=2 TO 5:KEY(N)ON:NEXT N
2270 IF FD<>5 THEN CH$=""
2280 YC=4:FF=1:GOSUB 2370
2290 STRIG(0)ON:GOTO 1080
2300 CB=CB+1:IF CB>15 THEN CB=0
2310 GOTO 2370
2320 CS=CS+1:IF CS>15 THEN CS=0
2330 SS=1:GOTO 2370
2340 CP=CP+1:IF CP>15 THEN CP=0
2350 GOTO 2370
2360 FD=FD+1:IF FD>8 THEN FD=1
2370 PUT SPRITE 3,(XC,YC),CB,10
2380 PUT SPRITE 2,(XC,YC),CS,11
2390 PUT SPRITE 1,(XC+3,YC+4),CP,FD
2400 RETURN
2410 REM
2420 REM *                          *
2430 REM *
2440 REM *
2450 REM *                          *
2460 REM
2470 COLOR CP,CS,CB:SCREEN 2
2480 K$="":IF R<1 THEN 2510
2490 FOR S=0 TO R-1
2500 CD=CO(S):ON DR(S) GOSUB 1810,1820,1830,1890,1990:NEXT S:P=0:
F5=0
2510 PSET(XA(R),YA(R)),CO(R):RETURN
2520 REM
2530 REM *                          *
2540 REM
2550 REM
2560 REM *                          *
2570 REM
2580 IF R=0 THEN RETURN
2590 FX=66:GOSUB 3220
2600 PRINT#1,"saving data draw"
2610 ON ERROR GOTO 3260:OPEN"CAS:" FOR OUTPUT AS#2
2620 PRINT#2,"data";",";R;CS;CB
2630 FOR S=0 TO R
2640 PRINT#2,XA(S);YA(S);XB(S);YB(S);CO(S);DR(S);",";DR$(S);","
2650 NEXT S:CLOSE#2
2660 REM
2670 REM *                          *
2680 REM *
2690 REM *
2700 REM *                          *
2710 REM
2720 NF=NF+1:IF NF>99 THEN NF=1
2730 NF$="CAS:DRAW"+MID$(STR$(NF),2)
```